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Description

This invention relates to a dispenser for a roll of web material, such as a roll of paper towelling, of the kind in which the web material is removed from the centre of the roll.

A dispenser of this kind is shown in FR—A—2440724 wherein a tear-off device is disposed vertically below the centre of the roll.

This dispenser suffers from the problem that the roll is positioned so close to the base (even though it is supported by projections therefrom) that it is impossible to pull the web of a full roll to the apex of the tear-off device.

Consequently, a user in an effort to use the dispenser properly by guiding paper to the apex, will almost certainly pull out more web from the roll than is required before he realises that paper cannot be torn by the tear-off device, whereafter he tears the paper with his hands.

This clearly leads to considerable wastage of paper towelling and furthermore is extremely frustrating to a user who requires quick and easy dispensing.

A dispenser for a roll of web material in accordance with the invention comprises support means for supporting the roll in a substantially upright position, an apertured member which is spaced vertically below the roll when the latter is in its supported position, the aperture forming or including, a substantially triangular slot and so arranged that pulling a free end of web material from the centre of the supported roll down through the wider portion of the triangular portion of the aperture, and then pulling the free end with a component of force in a horizontal direction causes the web material to be guided into the apex of the triangle in which the web material wedges and is held, whereupon further application of force in the same direction causes the web material to tear at or below the aperture, characterised in that the substantial vertical spacing between the roll support and apertured member, and the positioning of the apex of the slot either close to or on the vertical axis containing the centre of the supported upright roll, are both such that the web material on dispensing is wedged and held in the apex of the slot whatever the instant used state of the roll.

Such an arrangement has the advantage that the whole roll is sequentially torn within the apex of the slot preventing wastage of paper and providing quick and easy dispensing.

In one embodiment only one slot is provided, the slot tapering when the dispenser is mounted in a predetermined alignment, on an upright wall or pole, in a direction substantially normal to the upright wall or pole. This is so that when a user of the dispenser pulls a free end of the web material in a general direction away from the wall or pole, with a component of force in a horizontal direction, the web material extending through the aperture is guided into the slot.

Alternatively the aperture may have at least three slots, extending in an arc of about 180°.

Each slot may be joined to an adjacent slot by a straight or an inwardly curving portion of the periphery of the aperture. With this alternative embodiment the user of the dispenser may pull the free end of web material in a greater range of directions away from the wall or pole with the web material still being guided into one of the slots.

If the dispenser is designed to be mounted on a pole so that material may be dispensed all round the pole, the aperture may be star shaped, the star having at least three points, each of which comprises a tapered slot, and each of which is joined to an adjacent point by an inwardly curving portion of the periphery of the aperture. The user of the dispenser may then pull the free end of web material in any direction, as long as there is a component of force in a horizontal direction to cause the web material to be guided into one of the slots.

In order to keep the roll clean and dry, a housing open at one end may be provided, the open end resting on the support means. The housing may be pivoted to the support means to permit movement between an open or roll replacement position in which it lies beneath the support and a dispensing or closed position in which it is swung up over a roll positioned on the support.

The apertured member which is normally a plate, is preferably spaced vertically below the support means, which may comprise one or more substantially horizontal surfaces and/or vertical, spaced ribs.

The dispenser is specially useful for dispensing predetermined lengths of paper towelling or the like from a roll of paper towelling having transverse rows of perforations spaced at equal distances along its length. The paper towelling will tear at the line of perforations below the slot in which it is wedged and held, and thus a predetermined fixed length of paper towelling may be dispensed. Also it is easy for a user to wedge the towelling web in a slot than to tear it against teeth.

The invention will now be further described by way of examples with reference to the accompanying drawings, in which:

Figure 1 is a side view of one embodiment of a dispenser in a closed position in accordance with the invention,

Figure 2 is an underneath view of the dispenser of Figure 1,

Figure 3 is a cross-section of the dispenser of Figure 1 taken along the line III—III of Figure 2,

Figure 4 is a cross-section of the locking means for the dispenser of Figure 1, shown in the locked position,

Figure 5 is a plan view of the locking means of Figure 4 partly broken away, and in the open or unlocked position,

Figure 6 is a perspective view of another embodiment in an open position in accordance with the invention,

Figure 7 is an underneath plan view of the dispenser of Figure 6,

Figure 8 is a side elevation cross-section of another embodiment of dispenser in accordance with the invention, and

Figure 9 is an underneath plan view of the dispenser of Figure 8.

Referring to Figures 1 to 3 of the drawings, the dispenser comprises a housing 2 including a front portion 3 pivotally mounted about an axis 4 to a back plate 6 through an intermediate portion 8 positioned between the pivotable front portion 3 and plate 6. The portion 8 includes a support plate 10.

The plate 10 has a horizontal base 12 having a central opening 14. A tubular member 16 extends down from the edge of the central opening 14 and its outer end is closed by a plate 18 having a triangularly shaped aperture 20 with two inwardly tapering sides 22 (see Figure 2) forming a "slot" terminating at an apex 24. A roll 26 (shown dotted in Figure 1) of a web of paper towelling is placed inside the housing 2 and supported on the base 12, and a free end of the web is fed through the central opening 14 and aperture 20. To remove a length of towelling from the roll the free end is pulled by a user from beneath the tubular member 16. When he has a desired length he pulls the web partially horizontally in a direction away from the back plate 6 which is secured to a support. This causes the web to be guided along the inwardly tapering sides 22 towards the apex 24 so that the web is wedged and hence held in the slot. Further pulling of the web causes the material to tear at or below the "slot". If the web is formed with a series of perforations extending across the material at intervals then the web will tear across one of these set of perforations. The wedging effect prevents unnecessary material being pulled from the roll and thus eliminates waste.

As the dispenser is mounted on a wall or like vertical surface or upright pole by means of the back plate 6, the sides 22 of the aperture 20 are shown as tapering inwardly as they extend away from the back plate 6.

A part of the back portion of the member 16 is removed to allow access to opening 14 so that a user of the dispenser may pass their hand through the opening 28 and aperture 20, and grab the free end of web material extending through the central opening 14 but which may not extend through the aperture 20.

A plate 30 resting in the central opening 14 of the base 12 provides extra support for the roll 26. The insert plate 30 has an opening 32 through which web material is dispensed.

The front portion 3 of the housing 2 is shown closed in Figures 1 and 2, but it may be swung down about the axis 4 away from the back plate into an open position in which a spent roll 26 can be removed and a new roll inserted.

To prevent unauthorised access to the roll 26, a lock 34 (see Figures 3, 4 and 5) is provided to lock together the front portion 3 and intermediate portion 8 of the housing 2.

The lock 34 comprises a lock bar 35 and a lock

cam 36 both located within a housing 37 moulded to or forming part of the intermediate portion 8.

The lock bar 35 comprises a cam support portion 38 and a latch hook 39, the cam support 38 being substantially hollow so that the cam 36 can be housed therewithin. The base 40 of the cam support portion 38 defines a slot 41 along which the lock cam 36 can traverse.

To operate the lock (from the open position shown in Figure 5), and thus lock the housing 2 of the dispenser in its closed position, an appropriately shaped key is placed within the positionally off-centre shaft 42 of the lock cam 36, and on turning of the key in the direction of the arrow A (see Figure 5) the lock cam 36 is caused to rotate within the cam support member 38 and the shaft 42 to traverse along the slot 41. The result is that the cam causes the cam support member 38 to move the lock bar 35 in the direction of arrows B. The hook 39 then co-operates with a lug 43 attached to the front portion 3 of the housing 2. To open the housing 2, the key is positioned within the shaft 42 and simply turned in the opposite sense of the direction of arrow A, resulting in the hook 39 being withdrawn from the lug 43.

The lock 34 may comprise two or more lock bars 35 each lock bar 35 being connected by bars 44 so that only one key is needed to operate all the bars 35.

Referring to Figures 6 and 7 of the drawings a housing 50 is pivotally mounted along an axis 51 on a support bracket 52 having a central aperture 53 formed in the base 55 thereof and defining a substantially triangular slot. Four parallel vertical ribs 54 extend up from the base 55 of the bracket 52, which together with a ledge 56, serve as support means. The aperture 53 has three slots 57 tapering towards their end face, each slot being joined to an adjacent slot by an inwardly curving portion 58 or a straight portion 59 of the periphery of the aperture 53. The whole assembly is mounted on a wall or like vertical surface by the back plate 60 of the support bracket 52.

In operation, the housing 50 is swung about the axis 51 into its open position (as shown in Figure 6). A roll of perforated web material (shown by dashed lines in Figure 6), such as a roll of paper towelling is placed on the support bracket 52, resting on the vertical ribs 54 and the ledge 56. The housing 50 is open at one face 62 to allow a free end of the paper towelling to be pulled from the centre of the roll down through the aperture 53. The housing 50 must now be swung about the axis 51 in the direction of the arrow X shown in Figure 6 so as to cover the roll; the open face 62 allows the housing 50 to ride freely over the roll. To remove a length of paper towelling the free end is pulled out to a distance a little greater than the spacing between the lines of perforation on the paper towelling (conveniently 35—40 cm). Subsequently pulling the free end at an angle to the vertical causes the paper towelling to be guided by an inwardly curving portion 58 of the periphery of the aperture so as to wedge and thus be held in a slot 57 of the aperture 53, so that the

length of paper towelling may be torn off along a line of perforations below the slot 57. The wedging of the paper towelling in the slot 57 prevents any more than is required being pulled from the roll, thus eliminating undue wastage.

Referring to Figures 8 and 9 of the drawings a cylindrical housing 63 is mounted on a horizontal support disc 64 having a central opening 65 formed therein. Four vertical ribs 66 extend below the disc 64, and carry an apertured plate 67. The plate 67 has a star shaped aperture 68 which is disposed vertically below the opening 65. The star shaped aperture 68 has four points 69, each of which is joined to an adjacent point by an inwardly curving portion 70 of the periphery of the aperture 68, so as to form two substantially triangular slots. The whole assembly is mounted on a wall or like vertical surface by bracket 71.

In operation, a roll of perforated web material, such as a roll of paper towelling is placed inside the housing 63, resting on the disc 64. A free end of the paper towelling is pulled from the centre of the roll down through the opening 65 and the aperture 68. To remove a length of paper towelling the free end is pulled out to a distance a little greater than the spacing between the lines of perforation on the paper towelling (conveniently 35—40 cm). Subsequently pulling the free end at an angle to the vertical causes the paper towelling to be guided by an inwardly curving portion 70 of the periphery of the aperture so as to wedge and thus be held in a point 69 of the star shaped aperture 68, so that the length of paper towelling may be torn off along a line of perforations below the point 69. The wedging of the paper towelling in point 69 prevents any more than is required being pulled from the roll, thus eliminating undue wastage.

In the embodiment of Figures 6 and 7, additional support to the roll may be provided by means of a disc, on which the roll may stand, having a central opening through which the web material may be pulled. This disc may be packed with the roll, or may be left permanently inside the dispenser, bridging the vertical ribs 54 and the ledge 56.

Claims

1. A dispenser for a roll of web material comprising support means for supporting the roll in a substantially upright position, an apertured member which is spaced vertically below the roll when the latter is in its supported position, the aperture forming or including, a substantially triangular slot and so arranged that pulling a free end of web material from the centre of the supported roll down through the wider portion of the triangular portion of the aperture, and then pulling the free end with a component of force in a horizontal direction causes the web material to be guided into the apex of the triangle in which the web material wedges and is held, whereupon further application of force in the same direction causes the web material to tear at or below the

aperture, characterised in that the substantial vertical spacing between the roll support (10) and apertured member (18), and the positioning of the apex (24) of the slot (20) either close to or on the vertical axis containing the centre of the supported upright roll (26), are both such that the web material on dispensing is wedged and held in the apex (24) of the slot (20) whatever the instant used state of the roll (26).

2. A dispenser as claimed in Claim 1 wherein the aperture (68) includes a plurality of substantially triangular slots, the aperture being so configured that pulling the free end of web material with a component of force in a horizontal direction causes the web material to be guided into one of said plurality of slots.

3. A dispenser as claimed in Claim 1 in which the roll support means (10, 30) has a circular aperture (32) through which the web material passes from the centre of the roll (26), the base of the triangular aperture/slot being horizontally offset from the periphery of the circular aperture of the roll support so that when the web material is pulled from the roll, it passes between the aperture (32) of the roll support means and the apertured member (18), in a path which is at an angle to the vertical.

4. A dispenser as claimed in any of the preceding claims including a housing (2) for the roll, the housing being supported by and pivoted to the support means (10) for pivotal movement between a closed and an open position.

5. A dispenser as claimed in Claim 4 wherein the housing includes locking means (34) for securing the housing (2) in the closed position.

6. A dispenser as claimed in any of the preceding claims including a support insert (30) positioned on said support means (10) for providing extra support to the roll (26) of web material.

7. A dispenser as claimed in any one of the preceding claims wherein the space between the apertured member (18) and roll support means (10) is at least partly open, to give access to the free end of web material.

Revendications

1. Un distributeur pour un rouleau de matière en bande comportant un moyen de support pour supporter le rouleau dans une position sensiblement verticale, un organe à orifice, situé à distance dans le sens vertical en-dessous du rouleau quand ce dernier est dans sa position supportée, l'orifice formant, ou comportant, une fente sensiblement triangulaire et disposé de façon à ce qu'une traction sur une extrémité libre d'une matière en bande à partir du centre du rouleau supporté, vers le bas au travers de la partie élargie de la partie triangulaire de l'orifice, puis une traction sur l'extrémité libre avec une composante de force dans une direction horizontale entraîne un guidage de la matière en bande dans la pointe du triangle dans laquelle la matière en bande se coince et est maintenue, après quoi une nouvelle application de force dans la même direc-

tion fait que la matière en bande se déchire à, ou en-dessous, de l'orifice, caractérisé en ce que l'écartement vertical sensible entre le support de rouleau (10) et l'organe à orifice (18), et le positionnement de la pointe (24) de la fente (20), soit près de, soit sur l'axe vertical contenant le centre du rouleau vertical supporté (26), sont tous deux tels que, au moment de la distribution, la matière en bande est coincée et maintenue dans la pointe (24) de la fente (20), quel que soit l'état d'utilisation à cet instant du rouleau (26).

2. Un distributeur selon la revendication 1 dans lequel l'orifice (68) comporte une pluralité de fentes sensiblement triangulaires, l'orifice étant configuré de sorte qu'une traction sur l'extrémité libre de la matière en bande avec une composante de force dans une direction horizontale entraîne un guidage de la matière en bande dans l'une de ladite pluralité de fentes.

3. Un distributeur selon la revendication 1 dans lequel le moyen de support de rouleau (10, 30) possède une ouverture circulaire (32) au travers de laquelle la matière en bande passe du centre du rouleau (26), la base de l'orifice/fente triangulaire étant décalée dans le sens horizontal à partir de la périphérie de l'orifice circulaire du support du rouleau de sorte que quand la matière en bande est tirée du rouleau, elle passe entre l'orifice (32) du moyen de support du rouleau et l'organe à orifice (18), dans une trajectoire qui est inclinée par rapport à la verticale.

4. Un distributeur selon l'une quelconque des revendications précédentes comportant un boîtier (2) pour le rouleau, le boîtier étant supporté par et pivoté sur le moyen de support (10) pour un mouvement de pivot entre une position fermée et une position ouverte.

5. Un distributeur selon la revendication 4 dans lequel un boîtier comporte un moyen de blocage (34) pour immobiliser le boîtier (2) dans la position fermée.

6. Un distributeur selon l'une quelconque des revendications précédentes comportant un élément rapporté de support (30) situé sur ledit moyen de support (10) pour fournir un support supplémentaire pour le rouleau (26) de matière en bande.

7. Un distributeur selon l'une quelconque des revendications précédentes dans lequel l'écartement entre l'organe à orifice (18) et le moyen de support de rouleau (10) est ouvert au moins partiellement, pour permettre l'accès à l'extrémité libre de la matière en bande.

Patentansprüche

1. Abroller für eine Bahnmaterialrolle mit einer Tragevorrichtung zum Tragen der Rolle in einer im wesentlichen aufrechten Stellung, einem mit einer Öffnung versehenen Glied, das senkrecht unterhalb der Rolle angeordnet ist, wenn diese sich in ihrer Ruhelage befindet, wobei die Öffnung einen im wesentlichen dreieckigen Spalt bildet oder enthält und derart angeordnet ist, dass beim Herunterziehen eines freien Endes des

Bahnmaterials von der Mitte der ruhenden Rolle durch den breiteren Abschnitt des dreieckigen Teilstücks der Öffnung und dem anschliessenden Abziehen des freien Endes mit einer Teilkraft in waagerechter Richtung das Bahnmaterial dadurch in den Scheitelpunkt des Dreiecks geführt wird, wo sich das Bahnmaterial einklemmt und festgehalten wird, woraufhin durch einen weiteren Kraftangriff in der gleichen Richtung das Bahnmaterial an oder unterhalb der Öffnung abgerissen wird, dadurch gekennzeichnet, dass die im wesentlichen senkrechte Anordnung zwischen dem Rollenträger (10) und dem mit einer Öffnung versehenen Glied (18) sowie die Lage des Scheitelpunktes (24) des Spalts (20), der sich entweder nahe bei oder auf der senkrechten Achse befindet, in welcher sich die Mittellinie der ruhenden aufrechten Rolle (26) befindet, beide derart zueinander stehen, dass das Bahnmaterial beim Abrollen im Scheitelpunkt (24) des Spalts (20) eingeklemmt und festgehalten wird, in welchem Gebrauchszustand sich auch immer die Rolle (26) befindet.

2. Abroller nach Anspruch 1, worin die Öffnung (68) eine Vielzahl von im wesentlichen dreieckigen Spalten enthält, wobei die Öffnung derart gestaltet ist, dass beim Abziehen des freien Endes des Bahnmaterials mit einer Teilkraft in waagerechter Richtung das Bahnmaterial dadurch in einen der erwähnten zahlreichen Spalte geführt wird.

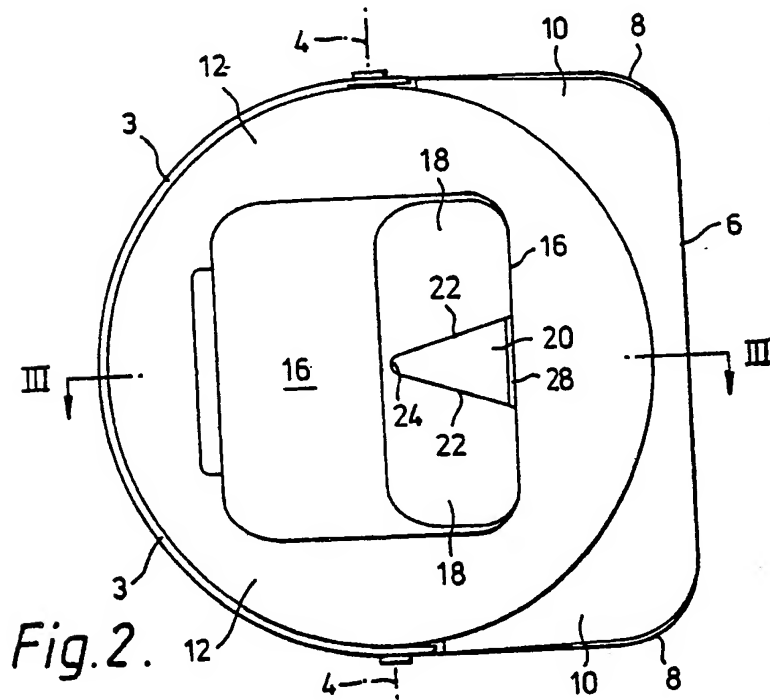
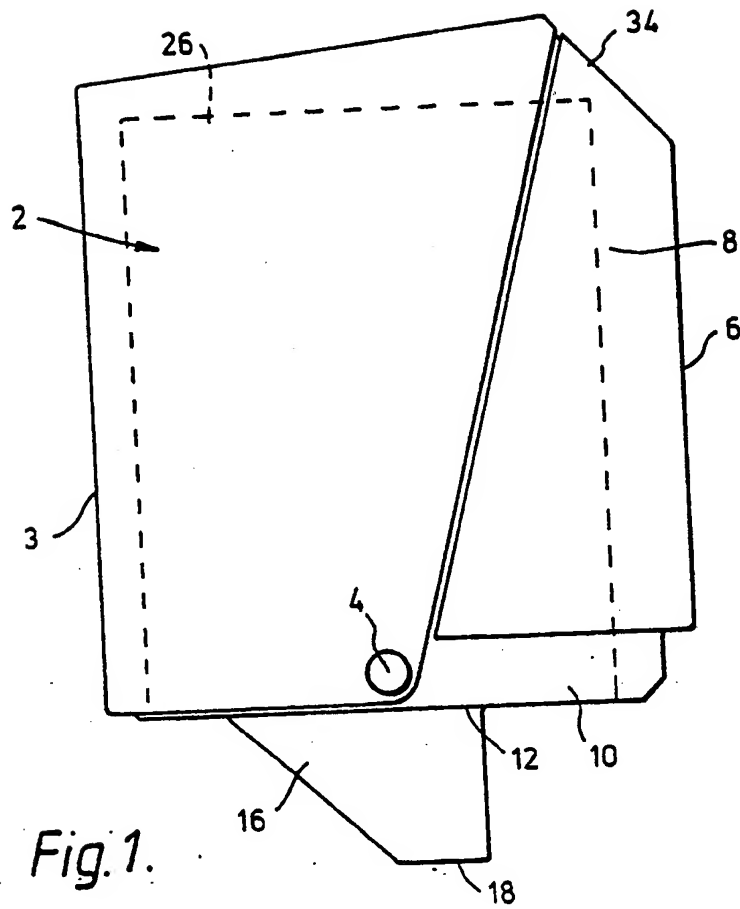
3. Abroller nach Anspruch 1, worin die Rollentragevorrichtung (10, 30) eine kreisförmige Öffnung (32) hat, durch die das Bahnmaterial aus der Mitte der Rolle (26) hindurchläuft, wobei der Grundfläche der bzw. des dreieckigen Öffnung/Spalts waagerecht vom Umfang der kreisförmigen Öffnung des Rollenträgers abgesetzt ist, sodass beim Abziehen des Bahnmaterials von der Rolle dieses zwischen der Öffnung (32) der Rollentragevorrichtung und dem mit einer Öffnung versehenen Glied (18) auf einem Weg hindurchläuft, der sich in einem Winkel zur Senkrechten befindet.

4. Abroller nach einem der vorhergehenden Ansprüche mit einem Gehäuse (2) für die Rolle, wobei das Gehäuse von der Tragevorrichtung (10) schwenkbar gehalten ist und mit einer Schwenkbewegung in eine geschlossene und eine geöffnete Stellung gebracht werden kann.

5. Abroller nach Anspruch 4, worin das Gehäuse eine Rastvorrichtung (34) zur Verriegelung des Gehäuses (2) in der geschlossenen Stellung enthält.

6. Abroller nach einem der vorhergehenden Ansprüche mit einem Trageinsatz (30), der auf der erwähnten Tragevorrichtung (10) aufgebracht ist, um der Bahnmaterialrolle (26) eine zusätzliche Abstützung zu verleihen.

7. Abroller nach einem der vorhergehenden Ansprüche, worin der Zwischenraum zwischen dem mit einer Öffnung versehenen Glied (18) und der Rollentragevorrichtung (10) zumindest teilweise offen ist, um das freie Ende des Bahnmaterials zugänglich zu machen.



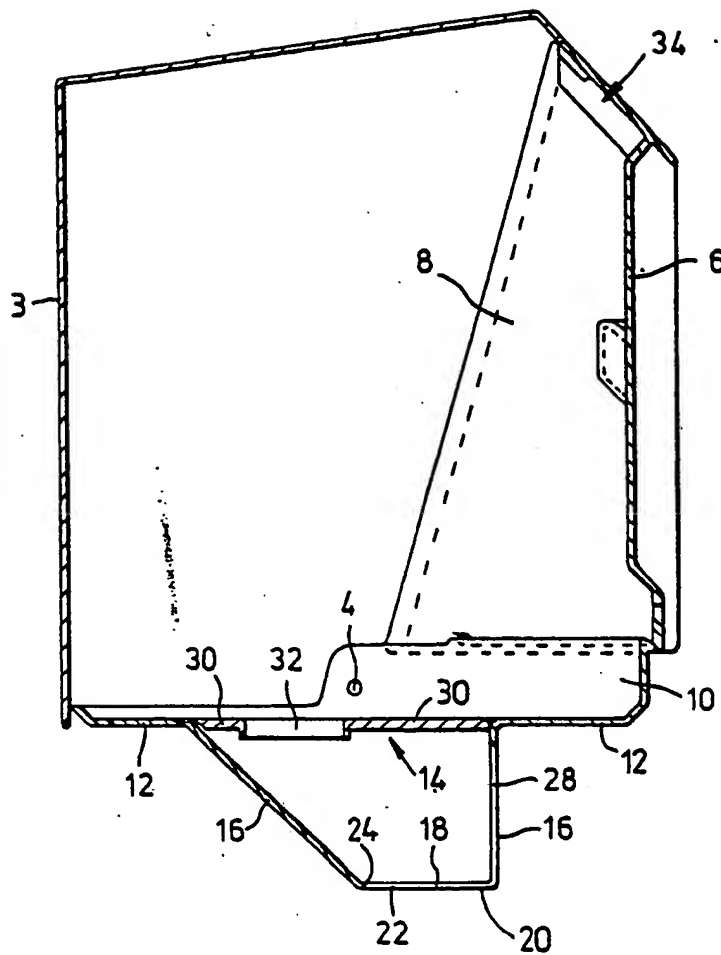


Fig. 3.

Fig. 5.

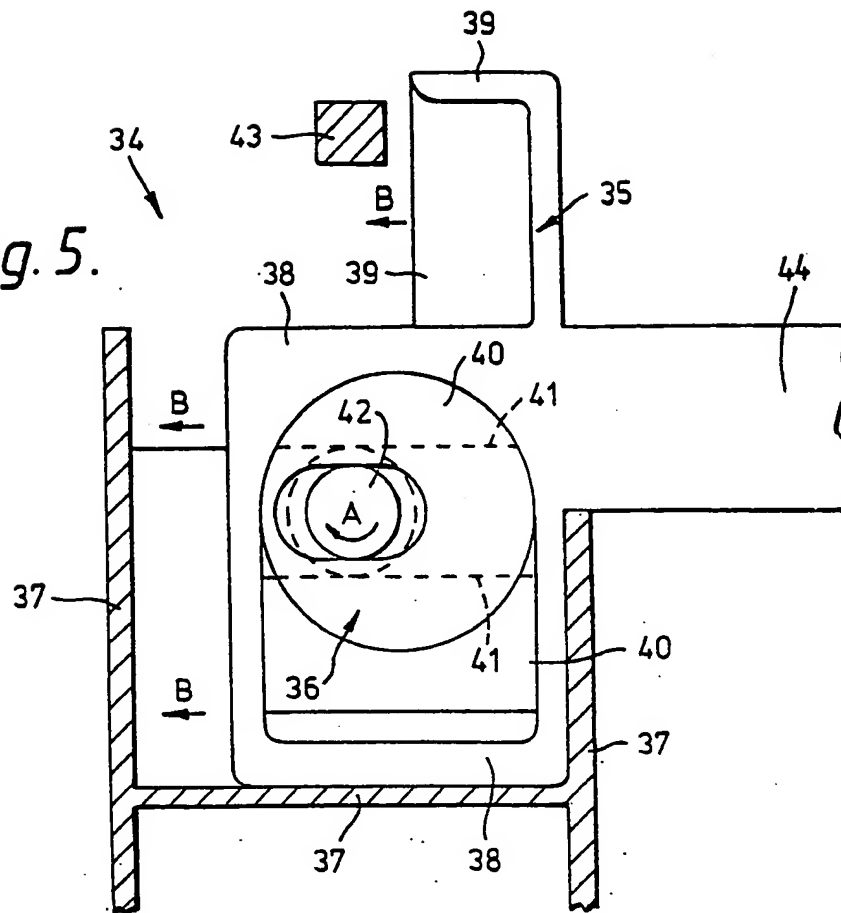


Fig. 7.

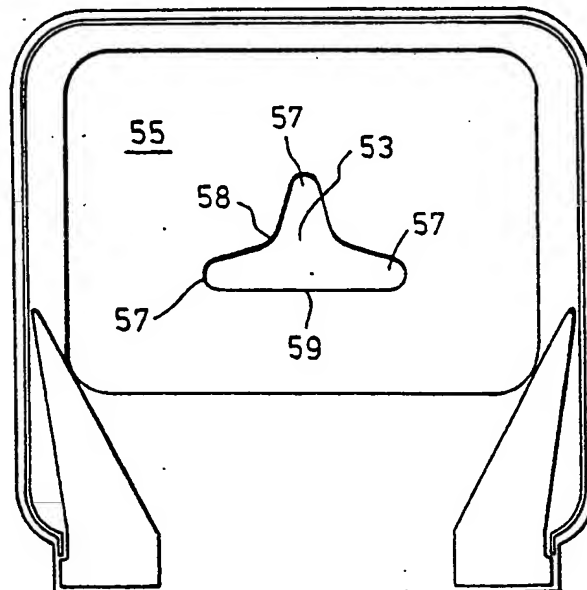


Fig. 6.

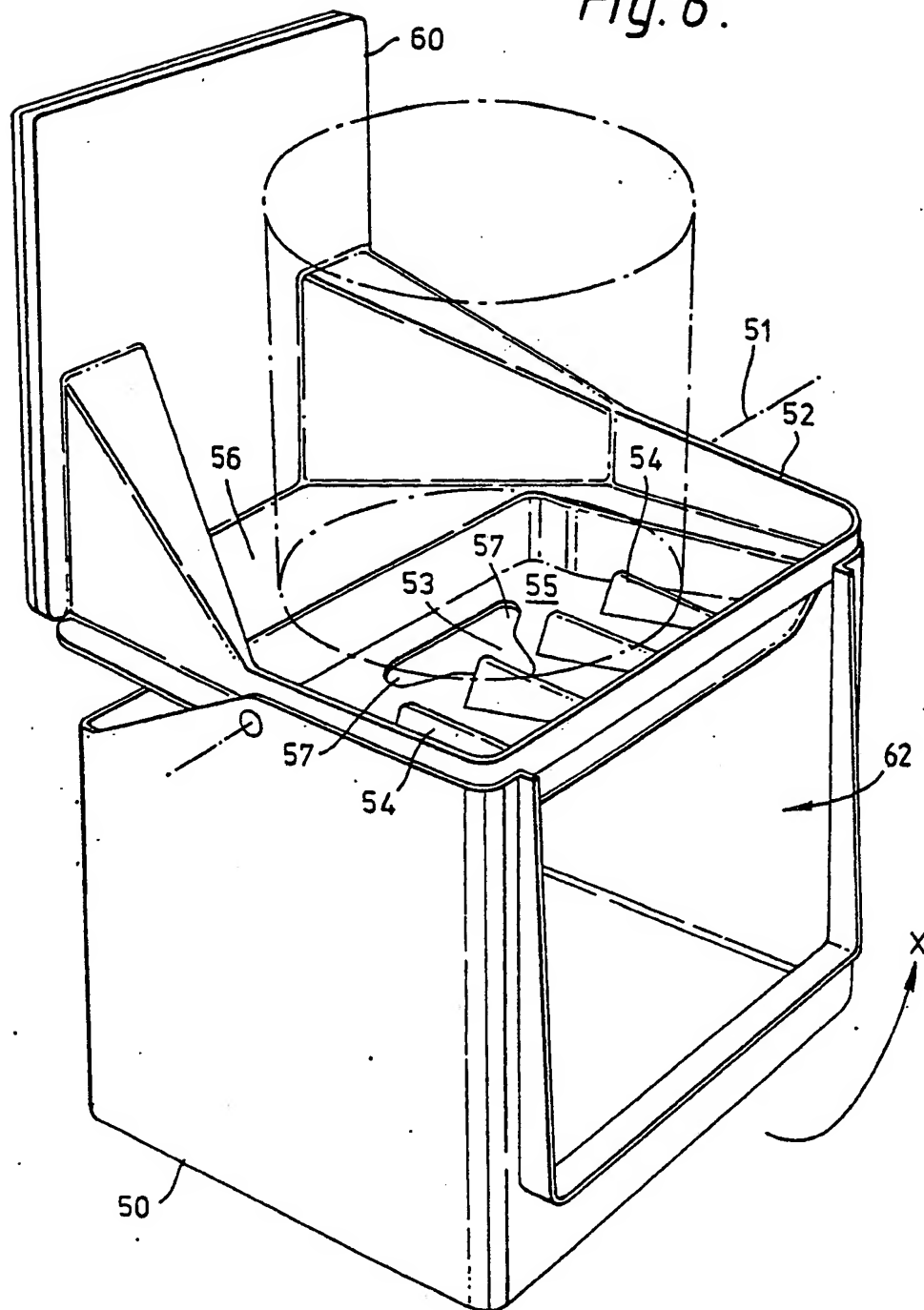


Fig. 8.

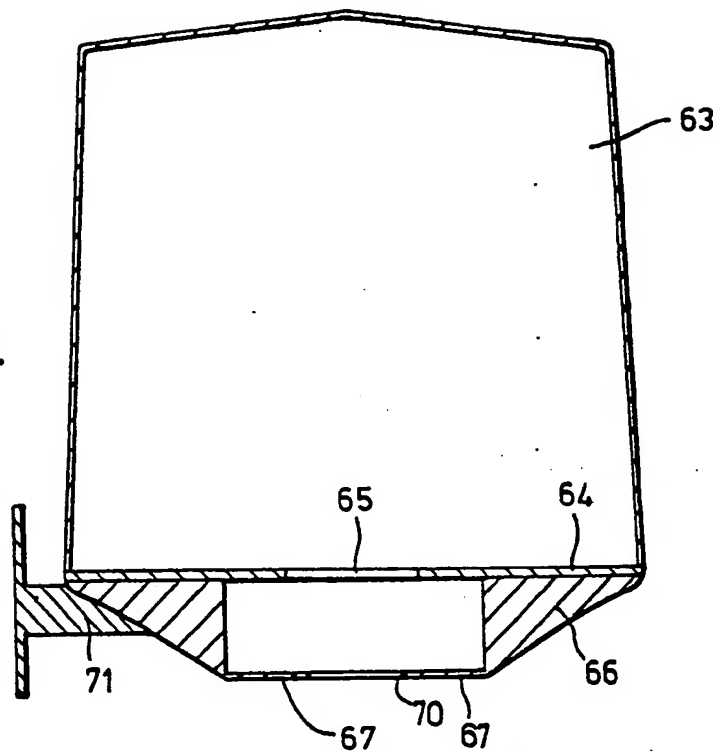
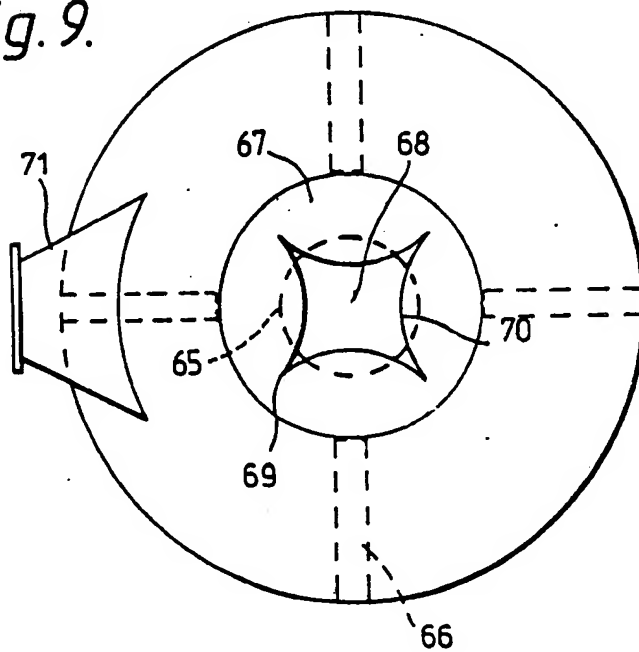


Fig. 9.



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